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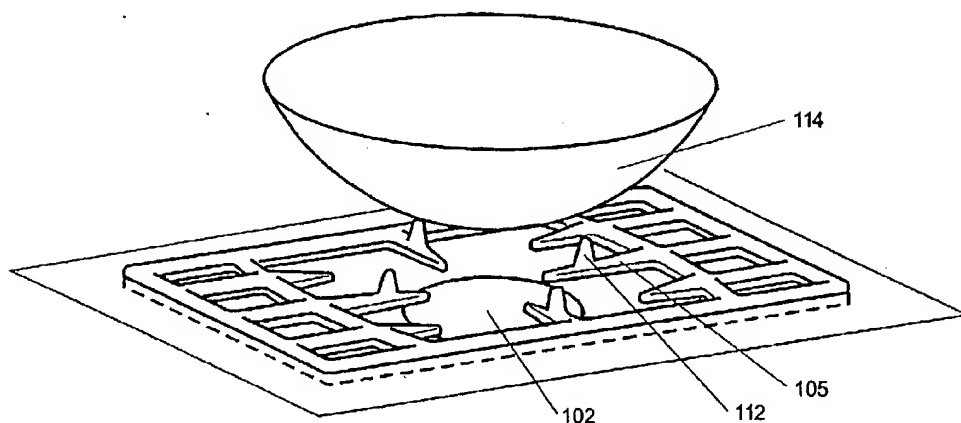
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- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A GAS HEATING APPLIANCE



(57) Abstract: A trivet for supporting both flat and curved bottom cooking vessels. Various alternatives are described including a flippable trivet which on one side supports flat bottomed vessels and on the other curved bottom vessels. The curved bottom vessel may be supported by either upstanding prongs, an upstanding ring, an aperture in the trivet, or a ring in the trivet.

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A GAS HEATING APPLIANCE

FIELD OF INVENTION

The present invention relates to cooking vessel support structure particularly though not solely for use with gas cookers. Such structures are commonly known as trivets, grates or pan supports, and the terms may be used interchangeably.

BACKGROUND ART

It is well known in the art of gas cookers to provide a support structure which supports cooking vessels the correct distance above the gas flames, but which minimises any quenching or impairment of the flames before they heat the cooking vessel. Accordingly the support structure, or trivets as they are more commonly known, often comprise a small number of narrow prongs on which the cooking vessel may rest. These prongs may be for example be constructed of cast iron or enamel coated steel.

Generally speaking two types of trivets are used. Firstly, a flat trivet would be used in case of normal flat bottomed cooking pots or frying pans. However, in the case of abnormally shaped pots, such as Chinese woks a different configuration needs to be provided. To overcome this often gas cookers will be sold with at least one extra trivet which may be interchanged to support a wok. This may for example have a inner ring on which the wok is supported, or a number of vertical upstands for which support the wok. Alternatively an additional upstand may be supplied which is stored separately. The upstand is installed over top of the normal trivet whenever a Wok is used. It would be desirable therefore to provide a trivet which did not require the need for an extra trivet to be supplied for cooking with a wok. For example in Japanese Patent publication no. 8247478 a trivet for a gas range, capable of supporting a flat bottom of or a large and round bottom of a pan, etc., in a stable state, is described. A plurality of hooks supporting a bottom of a pan, etc., are pivotably connected to a plurality of legs standing on a table frame by using pins and these hooks are fixed inside the table frame surrounding flames from a burner 1 at a position where the hooks extend in a

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substantially horizontal direction, or are fixed outside the table frame at a position where the hooks extend in a slant direction.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention is to provide a support structure which overcomes the abovementioned disadvantages in the prior art or which will at least provide the public with a useful choice.

Accordingly in a first aspect the present invention consists in a structure for supporting a cooking vessel above a gas burner comprising:

a plurality of interconnected supporting members forming on one side thereof a first supporting side, and

at least three vertical supports having proximal ends attached to said plurality of supporting members and having distal ends extending substantially perpendicularly away from said first supporting side,

wherein said first supporting side adapted to accommodate a flat bottomed cooking vessel and said distal ends adapted to accommodate an at least partially curved bottom cooking vessel.

Preferably said structure includes an aperture formed in between said supporting members, said aperture adapted to support an at least partially curved bottom cooking vessel.

Preferably said structure includes at least one, at least part, annular member attached to at least one of said distal ends and adapted to support an at least partially curved bottom cooking vessel.

Preferably at least three of said supporting member terminating in said aperture having terminal ends, said terminal ends adapted to support an at least partially curved bottom cooking vessel.

Preferably said structure includes at least one, at least part annular, restraining member attached to at least one of said terminal ends and adapted to support and at least partially curved bottom cooking vessel.

To those skilled in the art to which the invention relates, many changes in construction and widely differing embodiments and applications of the invention will

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suggest themselves without departing from the scope of the invention as defined in the appended claims. The disclosures and the descriptions herein are purely illustrative and are not intended to be in any sense limiting.

The invention consists in the forgoing and also envisages constructions of which the following gives examples.

BRIEF DESCRIPTION OF THE DRAWINGS

One preferred form of the present invention will now be described with reference to the accompanying drawings in which;

Figure 1 is a perspective view of the present invention showing the flat side of the trivet facing upwards, and

Figure 2 is a perspective view of the present invention with the wok side facing upwards.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides a simple and cheap support structure which can be easily used to support either a flat bottomed cooking vessel or a round bottomed wok when used with a gas cooker. Simply by flipping the structure over the operator can choose between the desired supporting configurations.

Referring to Figure 1 we see the present invention installed in a gas cooker 100 with a gas burner 102, which may have a single or multiple concentric rings of outlets. The trivet 104 includes an outer edge 106 which fits securely within a lip 108 running around the edge of the gas cooker 100. Under normal use a cooking vessel 110 with a flat bottom would then be placed on top of the trivet 104 and supported thereby the support members 105 which run between the area between the edge 106, and above the gas burner 102. In this fashion the trivet 104 can be easily removed for cleaning and maintenance of the gas burner 102.

Referring now to Figure 2, we see the present invention in use with the trivet 104 now inverted in the wok support configuration. As can be seen in Figure 2 a number of vertical upstands 112 are shown attached perpendicularly to the support members 105 and extending vertically upwards. While in Figure 2 there are shown four such vertical upstands, it will be appreciated that any number greater than three

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will be adequate to support a round bottomed cooking vessel 114 such as a wok. It would also be appreciated that these prongs must be positioned wide enough and high enough so as to provide stable support to a wok 114, but also such that when the trivet 104 is inverted in the flat bottom pot configuration, that the vertical upstands 112 do not interfere with the gas burner 105 or the flames heating the cooking vessel.

While it will be appreciated that in the preceding, was one possible embodiment was described, a number of variations are possible. For example, the present invention could also be achieved with

- upstanding prongs with an aperture in the trivet,
- an upstanding ring with an aperture in the trivet,
- supported within an aperture in the trivet by the horizontal members,
- supported within an aperture in the trivet on a ring, or
- high upstanding prongs with no aperture in the trivet

It will be appreciated that the present invention as described in the foregoing is a simple and easy method for providing a trivet which can be used to support either a flat bottom cooking vessel or a wok-style cooking vessel above a gas cooker. In so doing it dispenses with the need for extra trivets or less efficient configurations as were known previously in the prior art. By providing the support for the work over a wide area the stability and therefore safety is improved. Further the supports are unobtrusive and far removed from the flames, thereby minimising any loss of heating and maximising efficiency. Also as the trivet is supported and confined by the lip, it is very stable. Such stability is important for wok cooking which can be quite vigourous and safety is paramount.

CLAIMS:

1. A structure for supporting a cooking vessel above a gas burner comprising:
a plurality of interconnected supporting members forming on one side thereof
a first supporting side, and
at least three vertical supports having proximal ends attached to said plurality
of supporting members and having distal ends extending substantially perpendicularly
away from said first supporting side,
wherein said first supporting side adapted to accommodate a flat bottomed
cooking vessel and said distal ends adapted to accommodate an at least partially curved
bottom cooking vessel.
2. A structure for supporting a cooking vessel as claimed in claim 1 further
comprising an aperture formed in between said supporting members, said aperture
adapted to support an at least partially curved bottom cooking vessel.
3. A structure for supporting a cooking vessel as claimed in claims 1 or 2 further
comprising at least one, at least part, annular member attached to at least one of said
distal ends and adapted to support an at least partially curved bottom cooking vessel.
4. A structure for supporting a cooking vessel as claimed in claim 2 wherein at
least three of said supporting member terminating in said aperture having terminal ends,
said terminal ends adapted to support an at least partially curved bottom cooking vessel.
5. A structure for supporting a cooking vessel as claimed in claim 4 further
comprising at least one, at least part annular, restraining member attached to at least
one of said terminal ends and adapted to support an at least partially curved bottom
cooking vessel.
6. A structure for supporting a cooking vessel substantially as described as any of
the embodiments herein with reference to and as illustrated by any of the drawings.

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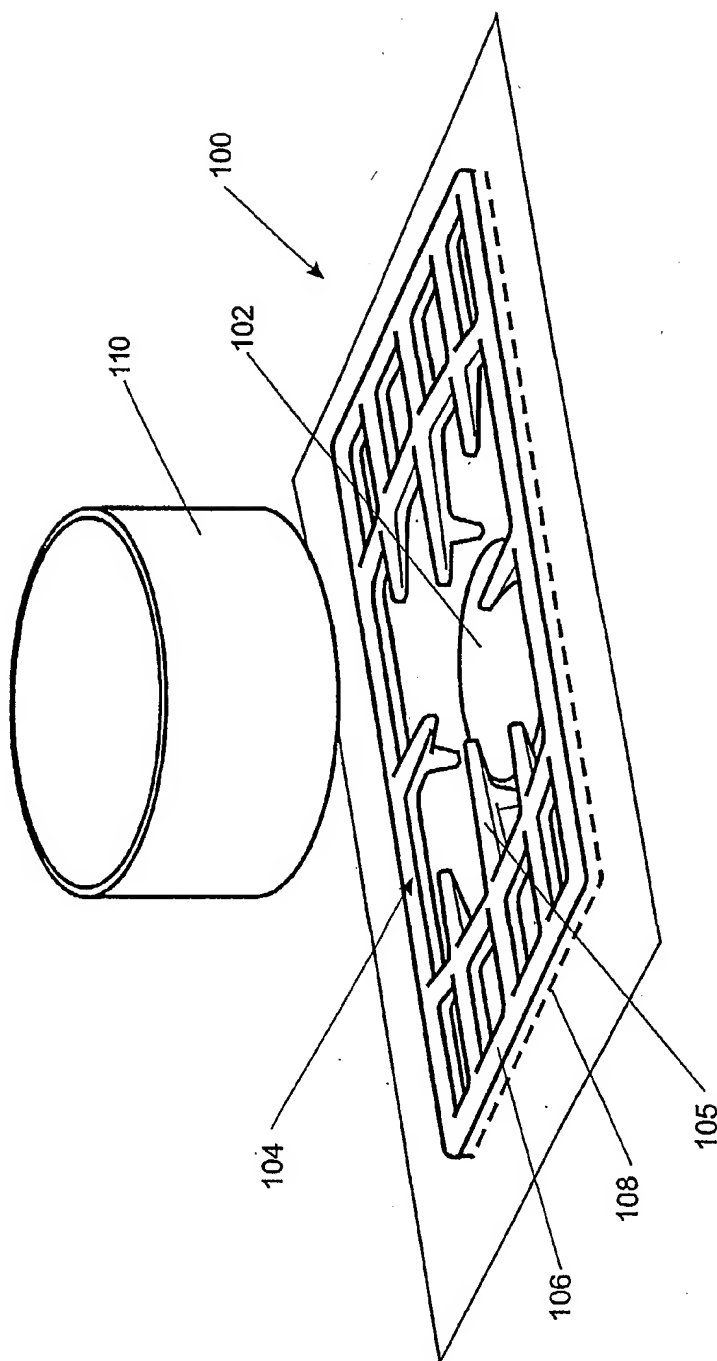


FIGURE 1

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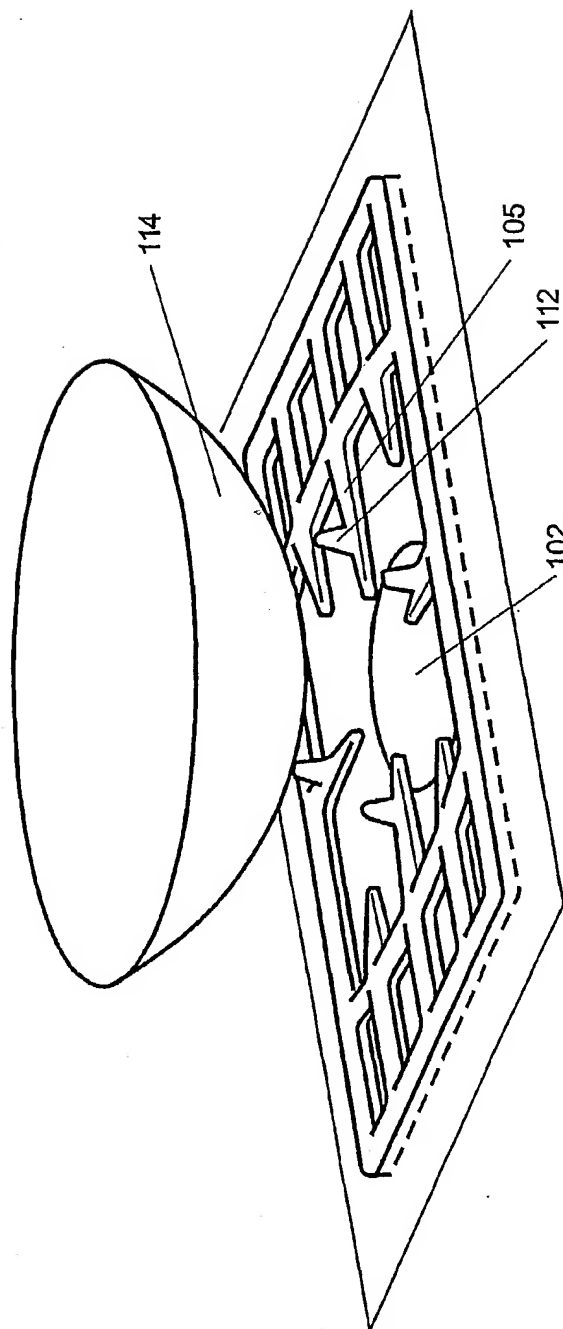


FIGURE 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ02/00015

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl. ⁷ : F24C 3/02, 15/00, 15/10		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC (7): F24C		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
DWPI (Wok and trivet or support or grill or frame)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Derwent Abstract Accession No. 96-488441/49, class Q74 JP 8247478 (NOYA), 27 September 1996	1-6
A	US 5345062 (MAUDAL), 6 September 1994 Whole document	1-6
A	US 4530345 (CHRISTIANSEN), 23 July 1985 Whole document	1-6
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input type="checkbox"/> See patent family annex		
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>		
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